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SERVICE STATISTICS

A model survey of computer services

Note by the Secretariat**

SUMMARY

At its twenty-fifth session, the Statistical Commission noted the valuable contribution of the Voorburg Group on Service Statistics and invited the Group to prepare a report on a substantive topic. The present document is their response. It describes a model survey designed for the collection of data on computer services. It is organized as follows: after a brief introduction, section I sets out the objectives and scope of the proposed survey. Section II contains the elements required to design a survey questionnaire. Section III explains the data collection system. Points for discussion are suggested in paragraph 63.

* E/CN.3/1991/1 and Corr.1.

** Prepared by the Voorburg Group on Service Statistics.

READY

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INTRODUCTION

1. The Voorburg Group on Service Statistics has contributed to the development of the Central Product Classification (CPC) by producing a classification of services as commodities for many of the service industries of the International Standard Industrial Classification of All Economic Activities (ISIC). The work of the Group has been incorporated into the version of the CPC that was presented to the Statistical Commission at its twenty-fifth session in February 1989 (ST/ESA/STAT/SER.M/77 and Add.1).

2. Subsequently, the Voorburg Group was asked to contribute a paper to the Commission at its twenty-sixth session, with the understanding that such a paper was a natural outcome of the Group's deliberations and at the same time furthered the understanding and international comparability of statistics on the service sector. 1/

3. At its 4th meeting, held in Ottawa in 1989, the Voorburg Group decided that in reply to the United Nations request, it would prepare a proposal for a model survey to be taken by a group of countries.

4. The present report, prepared by Statistics Canada and approved by the Voorburg Group at its 5th meeting (Paris, 1-5 October 1990) presents a proposal for a model survey of computer services.

5. The model is in the form of 11 modules for the collection of data about computer services; it is designed to test the product classes of the CPC and the industry classes of ISIC and to provide performance measures of the computer services industries. Two papers, containing definitions of the product classes used in module 1 and an explanation of the relationship between the classes of the model survey and the CPC, as approved by the Voorburg Group, will be made available, in their original languages, to Committee members.

I. OBJECTIVES AND SCOPE OF THE SURVEY

6. The objectives of the survey are to measure the following aggregates:

(a) The value of gross and net output originating from the computer services industries;

(b) The exports of goods and services originating from the computer services industries;

(c) The output and exports of computer services produced by other industries;

(d) The imports of computer services;

(e) Employment and fixed capital formation in the computer services industry.

It also gathers information on:

(a) The distribution and country of origin of software;

(b) Expenditure on software research and development.

7. Table 1 shows the scope of data collection proposed in the model survey of computer services.

8. The modules are not meant to be used as a single collection vehicle, since the target population is not the same for all modules and questions. Each statistical office participating in the survey will need to elaborate questionnaires and a collection strategy in line with its own survey practices and taking into account the response burden imposed on its respondents. In doing so, they may choose not to use all of the modules - or for that matter, all of the detailed questions provided in the first two modules.

9. Modules 1-6 form the core of the survey. They are designed for businesses classified under ISIC 72 - Computer and related activities. Some of the questions in those modules would also be relevant for collecting information about output and exports from businesses operating in other sectors of the economy.

10. Module 7 is designed for the collection of data relating to the imports of computer services.

11. Module 8 is designed for the collection of additional information about software revenues.

12. Modules 9 and 10 are designed for the collection of information on the number and characteristics of persons working in computer services industries and on capital formation in those industries.

13. Module 11 is designed for investigating research and development expenditures on software development and business accounting practices related to these expenditures.

14. Those countries that choose the enterprise as the unit of observation might want to include a balance sheet in order to gather information on assets and liabilities and the source and application of funds. This information is typically available for enterprises but not necessarily for more narrowly defined statistical units. Such an approach would provide a broader set of integrated data to analyse the performance of the computer services sector. Other data items which could be collected if the enterprises is used as the unit of observation are discussed in section III.

Table 1. Scope of data collection proposed in the model survey

Module	Topic
1	Revenues from the sale of goods and services
	1.1 Revenues from the sale of computer services
	1.2 Revenues from the sale of computer-related goods and services
	1.3 Revenues from other sources
2	Goods and services used in the operations
3	Purchases of goods and services for resale
4	Inventories
5	Supplementary questions concerning the basis of accounting
6	Exports
	6.1 Computer services
	6.2 Computer-related goods and services
7	Imports
	7.1 Computer services
	7.2 Computer-related goods and services
8	Supplementary questions regarding packaged software products revenues
9	Employment
10	Fixed assets, additions and disposals
11	Software research and development

II. THE MODEL SURVEY

15. The model survey is presented in the form of data collection modules. The classes of the CPC have been expanded and regrouped for inclusion in the survey. The data collection modules are as follows:

MODULE 1. REVENUES FROM THE SALE OF GOODS AND SERVICES

This module is concerned with the revenues generated by this organization from the sale of goods and services both to the domestic and the export market. For the purpose of this survey, transactions with related parties (sales at market prices or transfers at internal prices) should be included. Please exclude from the amounts reported any taxes collected by this organization on behalf of the Government.

1.1. Revenues from the provision of computer services

		Value
A.	PACKAGED SOFTWARE PRODUCTS (OF OWN DESIGN)	
	(a) Systems and user tools software	_____
	(b) Application software	_____
B.	PROFESSIONAL COMPUTER SERVICES	
	(a) Consultancy services related to the installation of hardware	_____
	(b) Systems and technical consulting services	_____
	(c) Custom software development services	_____
	(d) Systems analysis and programming services	_____
	(e) Computer facilities management services	_____
	(f) Systems maintenance services	_____
	(g) Other professional computer services	_____
C.	COMPUTER PROCESSING SERVICES	
	(a) Data processing and tabulation services	_____
	(b) Data entry services	_____
	(c) Other computer processing services	_____
D.	DATA BASE SERVICES (Electronic information services)	_____
E.	COMPUTER REPAIR AND MAINTENANCE SERVICES	_____
F.	OTHER COMPUTER SERVICES (please specify _____)	_____
TOTAL - COMPUTER SERVICES (A-F)		_____

1.2. Revenues from the sale of computer-related goods and services

	Value
G. PACKAGED SOFTWARE (RESOLD)	_____
H. COMPUTER HARDWARE SALES (RESOLD)	_____
I. COMPUTER SERVICES (RESOLD)	_____
J. COMPUTER HARDWARE LEASING AND/OR RENTAL SERVICES	_____
K. NETWORK SERVICES	_____
L. COMPUTER-RELATED TRAINING SERVICES	_____
TOTAL - COMPUTER-RELATED GOODS AND SERVICES (G-L)	_____

1.3. Revenues from other sources

M. ROYALTIES AND PATENT FEES RECEIVED	_____
N. SERVICES TO RELATED PARTIES NOT INCLUDED ABOVE (RESEARCH AND DEVELOPMENT CHARGES, MANAGEMENT FEES, ETC.)	_____
O. OTHER GOODS AND SERVICES (please specify _____)	_____
TOTAL - REVENUES FROM OTHER SOURCES (M-O)	_____
P. OPERATING SUBSIDIES	_____
GRAND TOTAL - OPERATING REVENUES (A-P)	_____

MODULE 2. GOODS AND SERVICES USED IN THE OPERATIONS

This module is concerned with the expenses incurred by this organization for goods and services used in the regular conduct of its business. Purchases of goods and services for resale without major modifications (e.g., purchases of software and hardware by systems integrators and value-added resellers) should be reported in module 3. For the purpose of this survey, transactions with related parties (purchases at market prices or transfers at internal prices) should be included. Please exclude capital expenditures and income taxes.

		Value
A.	WAGES, SALARIES AND EMPLOYEE BENEFITS	_____
	(a) Wages and salaries	_____
	(b) Employee benefits	_____
B.	BUSINESS SERVICES	_____
	(a) Computer services for own use (CPC 84)	_____
	(b) Professional services - legal, auditing, management consulting, etc. (CPC 86)	_____
	(c) Advertising and sales promotion (CPC 871)	_____
	(d) Insurance (CPC 812)	_____
C.	RENTAL AND LEASING OF MACHINERY (CPC 83)	_____
D.	TELECOMMUNICATION SERVICES (CPC 752)	_____
E.	MATERIALS AND SUPPLIES FOR OWN USE	_____
	(a) Operating supplies	_____
	(b) Office and other supplies	_____
F.	OCCUPANCY COSTS	_____
	(a) Rental and leasing of land and buildings (CPC 82)	_____
	(b) Utilities (CPC 17)	_____
G.	PROPERTY AND OTHER NON-COMMODITY INDIRECT TAXES	_____
	(a) Property and school taxes	_____
	(b) Permits, licences and other non-commodity indirect taxes	_____
H.	ROYALTIES AND PATENT FEES PAID	_____
I.	SERVICES FROM RELATED PARTIES (not included above)	_____
J.	DEPRECIATION	_____
K.	OTHER OPERATING, ADMINISTRATIVE AND GENERAL EXPENSES (please specify _____)	_____
TOTAL - CURRENT OPERATING, ADMINISTRATIVE AND GENERAL EXPENSES (A-K)		_____

MODULE 3. PURCHASES OF GOODS AND SERVICES FOR RESALE

This module is concerned with purchases of goods and services made by this organization and which have been resold to its clients without major modifications.

		Value
A.	Computer hardware	_____
B.	Packaged software products	_____
C.	Computer services (e.g., subcontracting computer professional or processing services, computer repair and maintenance services, etc.)	_____
D.	Other goods and services (please specify _____)	_____
TOTAL - GOODS AND SERVICES FOR RESALE (A-D)		_____

MODULE 4. INVENTORIES

This module is concerned with the change in the level of the various types of inventories held by your organization during the period covered by this report.

		Opening	Closing
(a)	Goods purchased for resale	_____	_____
(b)	Goods purchased for use in the operation	_____	_____
(c)	Other inventories	_____	_____

MODULE 5. SUPPLEMENTARY QUESTION CONCERNING THE BASIS OF ACCOUNTING

This module is concerned with the accounting method used in reporting revenues.

A. Did you report revenues (module 1) on an accrual or cash basis?

Accrual basis ____ Cash basis ____ please go to next question

B. If you were unable to report revenues (module 1) on an accrual basis, please provide an estimate of

		Opening	Closing
(a)	Value of work in progress	_____	_____
(b)	Value of accounts receivable	_____	_____

MODULE 6. EXPORTS

This module is concerned with exports of goods and services. If this organization has foreign clients, please provide an estimate of the proportion of total sales to non-residents for each of the following products. Sales or transfers to foreign related parties should be included.

		Percentage of revenues declared in module 1	or	Value
COMPUTER SERVICES				
A.	Packaged software products (of own design)	_____		_____
B.	Professional computer services	_____		_____
C.	Computer processing services	_____		_____
D.	Data base services (Electronic information services)	_____		_____
E.	Computer repair and maintenance services	_____		_____
F.	Other computer services	_____		_____
COMPUTER-RELATED GOODS AND SERVICES				
G.	Packaged software (resold)	_____		_____
H.	Computer hardware (resold)	_____		_____
I.	Computer hardware rental and/or leasing services	_____		_____
J.	Services to related parties not included above (research and development charges, management fees, etc.)	_____		_____
K.	Other goods and services (please specify _____)	_____		_____
TOTAL EXPORTS (A-K)				_____

MODULE 7. IMPORTS

This module is concerned with imports of computer-related goods and services. If this organization has directly imported goods and services from foreign suppliers, please provide an estimate of the purchase value of the following imported goods and services.

		Value
COMPUTER SERVICES		
A.	Packaged software products	_____
B.	Professional computer services	_____
C.	Computer processing services	_____
D.	Data base services (Electronic information services)	_____
E.	Computer repair and maintenance services	_____
F.	Other computer services	_____
COMPUTER-RELATED GOODS AND SERVICES		
G.	Computer hardware rental and/or leasing services	_____
H.	Services from related parties not included above (research and development charges, management fees, etc.)	_____
I.	Other goods and services (please specify _____)	_____
TOTAL IMPORTS (A-I)		_____

MODULE 8. SUPPLEMENTARY QUESTIONS REGARDING PACKAGED SOFTWARE PRODUCTS REVENUES

If your organization has generated revenues from the sale of packaged software products (module 1, sum of responses to questions A and G), this module requests supplementary information on the origin and type of packaged software distributed.

A. Please provide an estimate of the proportion of revenues (module 1, sum of A and G) derived from the sale of packaged software developed by

	Percentage of revenues declared in module 1	or	Value
(a) The organization covered by this report	_____		_____
(b) A domestic third party	_____		_____
(c) A foreign third party	_____		_____
(d) A domestic related party	_____		_____
(e) A foreign related party	_____		_____
TOTAL	100		_____

B. Please provide an estimate of the proportion of revenues (module 1, sum of A and G) derived from the sale of

	Percentage of revenues declared in module 1	or	Value
(a) Mini and mainframe software	_____		_____
(b) Microcomputer software	_____		_____
(c) Communication and other software not specified to (a) or (b)	_____		_____
TOTAL	100		_____

MODULE 9. EMPLOYMENT

This module is concerned with the number of persons employed.

	Males		Females	
	Computing a/	Other	Computing a/	Other
Working proprietors and partners:				
full time				
part time b/				
Paid employees:				
full time				
part time b/				
TOTAL				

a/ Including computing professionals (RISCO 2130), computer services managers (RISCO 1227), computing and related equipment operators (RISCO 3121 and 3122) and data-entry operators (RISCO 4113).

b/ No definition of part time is provided since it differs among countries. Each country should define part time according to its own conventions.

MODULE 10. FIXED ASSETS, ADDITIONS AND DISPOSALS

Include all fixed assets shown on your book of accounts and all assets operated by your business under finance lease arrangements. Exclude expenditures on maintenance and on intangible assets such as goodwill.

	Addition during the year	Disposal during the year	Book value at the end of the year
Land	_____	_____	_____
Building: residential	_____	_____	_____
non-residential	_____	_____	_____
Other construction	_____	_____	_____
Motor vehicles and other transport equipment	_____	_____	_____
Furniture and fittings	_____	_____	_____
Computer equipment	_____	_____	_____
Other plant, machinery and equipment	_____	_____	_____
All other fixed assets (specify main additions during the year)	_____	_____	_____

MODULE 11. SOFTWARE RESEARCH AND DEVELOPMENT

The information requested in this module should also have been reported in modules 2 and 10.

A. Has this organization been involved, in the period covered by this report, in software research and development?

YES _____. Go to B NO _____. Go to the end of this module

B. Please estimate the following categories of expenditure for the performance of software research and development within this company in this country in 199__.

	Value
Current expenditure on software research and development	
(a) Salaries and wages (incl. fringe benefits of persons engaged in research and development)	_____
(b) Other current costs (incl. contracts for services required to carry research and development but excl. contracts for research and development work. Excl. capital depreciation)	_____
TOTAL	_____
Capital expenditure on software research and development	
(a) Land	_____
(b) Buildings	_____
(c) Equipment	_____
TOTAL	_____
TOTAL EXPENDITURE ON SOFTWARE RESEARCH AND DEVELOPMENT	_____

C. In its financial accounts does this organization normally capitalize or expense the software development expenditures reported as current expenditure above?

	Capitalized	Expensed
Wages, salaries and benefits	_____	_____
Research and development contracts (subcontracting)	_____	_____
Other purchases of goods and services	_____	_____

III. EXPLANATION OF THE DATA COLLECTION SYSTEM

16. The paragraphs below discuss the purpose of the modules, the universe to which they apply, possible measurement problems, and the implications of the choice of the statistical unit or unit of observation. The discussion is followed by a scheme that presents the conceptual framework of the modules in terms of national accounts concepts.

A. Module 1. Revenues from the sale of goods and services

17. The purpose of module 1 is to measure the outputs, in current value, of business units classified in any of the computer services industries (ISIC 7210-7290). It is organized in three sections: section 1 covers the primary outputs, and sections 2 and 3 deal with the industries' most likely secondary products or sources of revenue, thereby allowing the calculation of specialization ratios necessary to determine the existence of industries (4-digit). If the questions of section 1 are also addressed to important secondary producers, it becomes possible to estimate coverage ratios, the missing element. This information would allow statistical agencies to test the applicability of the relevant ISIC classes.

1.1: Revenues from the provision of computer services

18. The intent of the questions in section 1 is to measure the outputs of computer services in current value, by the computer services industries (ISIC 7210-7290). The classes of the CPC have been regrouped into the following categories: 2/

(a) Packaged software products (of own design);

(b) Professional computer services;

(c) Computer processing services;

(d) Data base services (Electronic information services);

(e) Computer repair and maintenance services;

(f) Other computer services.

19. The main reasons for this regrouping of the CPC are:

(a) To account explicitly for the production (development) and distribution of packaged software products not currently isolated in the ISIC (part of 7220), the CPC (part of 84210) or the HS (part of 85.24);

(b) To be more in line with the approach adopted by the industry. The distinction between packaged software products, professional computer services and computer processing services, in particular, has general acceptance;

(c) To group products which are generally priced on a similar basis and therefore to facilitate future compilation of price statistics. For instance, packaged software products have a unit price; professional computer services are often charged on a per diem basis and the level of expertise of the people involved is typically the main price determinant; computer processing services are often priced on the basis of equipment utilization; and data base services (electronic information services) are usually priced on the basis of connect time, type of service accessed and period of the day it is accessed.

1.2: Revenues from the sale of computer-related goods and services

20. The intent of section 2 of module 1 is to measure the most important secondary outputs of businesses classified in the computer services industries. The rationale for, and issues raised by, some of the questions in the section are discussed below.

21. The hardware sale category is included to measure sales or commissions on sales of hardware by so-called systems integrators. 3/ These businesses offer total solutions to information processing needs. They typically perform a number of activities, including needs analysis, the development of system specifications, procurement assistance or sale of system components, custom software design and development, assistance during the implementation phase in the form of testing and tuning, preparation of systems documentation and training of users etc., or manage those who perform such activities. A number of issues arise regarding systems integrators:

(a) How should their output be defined?

(b) In which ISIC category should they be classified?

(c) How should their output be measured?

22. The output of systems integrators can either be defined as a combination of distinct goods and services - computer hardware, computer software and professional computer services - or as a bundle of goods and services. The former approach is suggested here. If the latter approach is adopted, a system integration service category would have to be defined and introduced in the survey.

23. The current CPC is not explicit about the classification of systems integrators' output. Perhaps CPC 84100 (Consultancy services related to the installation of hardware) was intended for this purpose. However, a different interpretation of this product category has been made here (see definition in annex 1).

24. The ISIC is also unclear about the classification of systems integrators. There are two apparent possibilities:

(a) They should be classified in ISIC 7210 (Hardware consultancy), which is the approach suggested here. If this approach is supported, a clarification of this ISIC definition should be sought. At a minimum, this definition should mention the three basic components of a typical systems integration contract mentioned above;

(b) They should be classified on the basis of their primary activity, either the wholesaling of computer hardware and software (ISIC 5150) or the provision of computer services (ISIC 7210).

25. The choice of questions to measure the output(s) of systems integrators is a function of the definition of their output (combination versus bundle of goods and services). The decision concerning the approach to assign an industry code to these businesses can also influence this choice; if the classification is based on the primary activity, it becomes necessary to obtain information on the component parts of system integration contracts.

26. The network services category is included to account for network-based services such as Electronic Data Interchange (EDI), Electronic Mail (E-mail) and videotex services (computerized home shopping, home banking etc.) which are sometimes offered by businesses primarily engaged in the provision of computer processing services and/or in data base (electronic information) services. In Canada these services are treated as communication services rather than as computer services. 4/

27. The purpose of the operating subsidies category is to respect the principles of economic accounting used in the valuation of industries' gross output. However, not all countries may wish to use the question, for the following reasons:

(a) Subsidies are not an important source of income for the industry;

(b) The question may be pertinent in some countries and not in others;

(c) There are other and more efficient ways of obtaining this information.

28. The main purpose of the question concerning services to related parties is to capture revenues earned by domestic business units by charging their foreign affiliates fees for research and development services, management services etc. The pertinence of this question may very well vary by country. It is especially interesting for those which are the home base for multinational enterprises operating in the computer services sector.

29. Module 1 contains the core information needed to measure the gross output of computer services industries. The missing information will be reviewed below in the discussions concerning modules 4 and 5.

30. In order to obtain information on the total production of computer services, some of the questions in module 1 should be addressed to business units classified in industries other than ISIC 72 (Computer and related activities). For example:

(a) Our research shows that accounting firms (ISIC 7412) and management consulting firms (ISIC 7414) are becoming important producers of computer consulting services;

(b) A significant portion of the packaged software products is distributed not by those primarily engaged in designing and developing such products, but rather by wholesalers, retailers and computer equipment manufacturers (ISIC 5150, 5239 and 3000, respectively).

It is difficult to suggest which specific industries should be targeted for the measurement of the secondary production of computer services. The choice of other industries requires a good knowledge of the country's organization of production, a matter best handled by national statisticians.

B. Module 2. Goods and services used in the operations, and Module 3. Purchases of goods and services for resale

31. The purpose of modules 2 and 3 is to obtain information on the cost structure of surveyed business units. This information, along with that of modules 1, 4 and 5, allows the calculation of value-added at factor cost 5/ originating from the computer services industries and also provides for an estimate of its major components - namely, wages, salaries and supplementary labour income; and gross and net operating surplus.

32. The questions in module 2 cover costs of production. The choice of categories was influenced by the following criteria:

(a) The expenses had to be significant for the targeted population. Countries may wish to combine some categories and elaborate on others. For example, they may wish to combine salaries and wages with employee benefits or to isolate, from the residual category, fuel oil, gasoline and automobile repair costs and any other categories they consider important;

(b) It had to meet the minimum requirements to calculate value-added. (These were set out in the Industrial Statistics Production Model, developed in Statistics Canada and distributed at the fourth meeting of the Voorburg Group.)

33. Property and school taxes (category G.a) and permits and licences (category G.b) of module 2 are included as examples of non-commodity indirect taxes. 6/ The data are necessary in order to calculate, by the residual method, value-added at factor cost. Each country adopting this survey would have to take into account its own taxation practices to determine which are the relevant questions.

34. Module 3 primarily targets systems integrators. As stated above, this type of business is often engaged in trading computer hardware and packaged software products. The information on the purchase value of these products (module 3) along with the information on their sale (module 1) allows the calculation of trade margins.

C. Module 4. Inventories

35. The purpose of module 4 is to collect information which permits the calculation of and intermediate inputs for services producing industries in a manner consistent with that used for goods producing industries. It presupposes that information relating to costs has been collected as materials and services purchased rather than goods and services used.

36. The first question in module 4 (inventories of goods purchased for resale) is addressed to business units engaged in the trading of computer hardware and packaged software in order to adjust purchases of goods for resale for changes in the level of inventories. The actual business practices of the targeted population may, however, make this question rather marginal. The units targeted by this question are, again, systems integrators. Since these businesses essentially "tailor" computer systems to meet the particular needs of each client, it is probably more efficient for them to acquire the necessary products on a need basis than to maintain inventories. A study of systems integrators' practices with regard to inventories could shed light on this issue.

D. Module 5. Supplementary questions concerning the basis of accounting

37. The purpose of module 5 is to collect the information necessary to value correctly the production of service outputs when transactions/revenues are reported on a cash basis. This is especially important for some consulting services, including professional computer services, since their production can require an extended period of time. In those cases, the period in which transactions (payments) are recorded may not reflect the period in which the services were produced.

38. Module 5 is organized in a manner similar to that of a typical module on inventories. It asks for particular values at the opening and closing of the accounting period. The questions address the issues of:

(a) Progress payments. Some service contracts include provisions for payments after completion of particular phases of the project. These payments can be used as a proxy for the value of production, in a given period, of a project which is not yet completed;

(b) Accounts receivable. This item allows the measurement of the value of services which have been delivered during the accounting period but for which no payment has been received.

39. The above questions are not needed if respondents report revenues on an accrual basis of accounting.

E. Module 6. Exports, and Module 7. Imports

40. The purpose of these modules is to measure international trade in computer services.

41. The classifications used in the export and import modules are consistent with, although not as detailed as, the classifications used in module 1. The choice of aggregate, rather than detailed, categories follows the usual practice where trade classifications are not as elaborate as those used for production statistics. This does not preclude the use of a more detailed or aggregated classification. The choice should be based on the relative importance of trade in the various services and on the capacity of respondents to supply the requested information. However, since the object of this survey is to produce internationally comparable data, it would be preferable to use either standard classes (most detailed level) or aggregates consistent with the classes or aggregates used to measure production.

42. Many of the issues that arise in measuring the import and export of computer services are a consequence of the different modes of delivery of these services. These can be:

(a) Delivery by the employees of a domestic enterprise by travelling to a foreign country (e.g., professional computer services, computer repair and maintenance services and computer-related training services);

(b) Shipped across the border embodied in a physical medium - e.g., diskettes, tapes, books. The most obvious examples are packaged and custom software; 7/

(c) Delivery through public or private telecommunication networks. Computer processing services and data base services are the best examples.

43. The main issues with regard to packaged or custom software shipped across the border are:

(a) The Harmonized System, the customs classification, does not isolate software as a traded product but rather categorizes the medium. There would therefore be a need to amend the Harmonized System if customs documents are to be used to gather information on trade in software;

(b) The valuation at the border, especially in the case of custom software, is very often that of the medium rather than the product. Because this problem will continue to exist even after changes to the Harmonized System, it may be preferable to obtain this information by addressing questions directly to importers and exporters.

44. The import or export value of computer services delivered through public telecommunication networks can be difficult to measure owing to the fact that the provision of such services can involve more than one enterprise - that is, the computer service firm and one or many telecommunication carriers. The measurement

difficulty can best be explained with the following example: an individual or a business subscribes to a telecommunication carrier's "gateway" service 4/ to gain access to a number of data bases, some of which are foreign. The client extracts data from a foreign source; therefore, an import of services should be recorded. The individual - the importer - transacts with a domestic enterprise, the telecommunication carrier, which acts as a broker. The bill received includes both the telecommunication charge (which itself can include an imported element) and a charge for the use of the data base service. This part of the bill is remitted, less a collection charge, to the foreign data base vendor by the telecommunication carrier. Although the individual is the importer, the telecommunication carrier is likely the best source to obtain information on imports of data base services in these instances. In the absence of "integrated billing", the importer (in this case the business or individual accessing the foreign data base) would be the best source of the information.

45. The target population for each of the two modules is different. The target population for the export module includes businesses classified to ISIC 72 (Computer and related activities) and important secondary producers. (When domestic-based multinational enterprises are addressed by these questions, they need to be instructed not to include sales by foreign subsidiaries in exports.)

46. The target population for the import module includes all businesses and institutions and, in the case of some services (in particular, software products and data base services), it also includes individuals. The size and diversity of the target population makes the elaboration of a collection strategy for import data a difficult task.

47. There are, however, some alternatives to surveying the entire potential universe of importers for certain types of services, provided some assumptions are made. For example:

(a) The value of imports of packaged software can be obtained through a survey of software distributors (wholesalers, retailers, developers, hardware manufacturers and distributors etc.). The necessary assumption here is that most imported software bought in the country is distributed through those channels;

(b) The value of imported data base services could perhaps be estimated from information provided by telecommunication carriers. This information could consist of total billings, traffic for gateway services and an estimate of the traffic generated by data base services which does not pass through gateways. The assumption here is that telecommunications carriers are able and willing to discriminate between this type of traffic and other movements of information through their networks. This approach will not however account for data base services transacted between parent and subsidiary corporations when private networks are used. In this case, questions would have to be addressed directly to the businesses making payments or transfers to their parent companies abroad for data base services and other computer services;

(c) The target population for the question concerning payments made to related parties can be established by isolating foreign-owned enterprises operating in the computer services sector and related fields.

F. Module 8. Supplementary questions regarding packaged software products revenues

48. This module serves the following objectives:

(a) To identify the national origin (domestic or foreign) of packaged software products marketed by domestic distributors in the domestic market 8/ (question A);

(b) To provide an insight into the structure of the software product market (question A) - that is, what proportion of the market is served by domestic software developers, foreign software developers or independent distributors;

(c) To compare the size of the mini- and mainframe software market with that of the microcomputer software market and of the market of software adapted to both technologies.

49. The questions in this module can be addressed to any business unit engaged in the marketing of packaged software products. Most of these units are likely classified in one of the following ISIC categories:

(a) ISIC 72. Computer and related activities (in particular, ISIC 7220 - Software consultancy and supply);

(b) ISIC 5150. Wholesale of machinery, equipment and supply (part of);

(c) ISIC 5239. Other retail sale in specialized stores (part of);

(d) ISIC 3000. Manufacture of office, accounting and computing machinery.

G. Module 9. Employment

50. This module is designed for the collection of information about both working proprietors and partners and paid employees within the businesses. No definition of part time is provided, as the notion differs among countries. Each country should define it according to its own conventions.

51. Computer-related occupations are defined in terms of the Revised International Standard Classification of Occupations of the International Labour Office. This module is principally designed for businesses primarily engaged in the supply of computer services.

H. Module 10. Fixed assets, additions and disposals

52. This module is designed for the collection of information relating to capital formation. The objective is to collect information about investment in all types of construction and machinery and equipment by businesses primarily engaged in the supply of computer services.

I. Module 11. Software research and development 9/

53. The purpose of module 11 is to gather information on amounts spent by software developers on research and development and on their accounting practices related to those expenses. The information requested in this module ought also to have been provided in modules 1 and 10.

54. Software research and development 10/ is defined as the systematic investigation carried out in the field of software by means of experiment or analysis to achieve a scientific or commercial advance. Research is original investigation undertaken on a systematic basis to gain new knowledge. Development is the application of research findings or other scientific knowledge for the creation of a new or significantly improved product. If successful, development will usually result in a product which represents an improvement in the "state of the art" and is likely to be patentable.

55. It is recommended that for section B all outlays on this activity by the surveyed organization should be included, whether they are expensed or capitalized. A further question in C then asks the respondent whether the expenses are capitalized or not.

J. Unit of observation

56. The choice of unit of observation for this survey is best left to participating countries since they are in a position to take account of factors such as the industry profile, the structure and content of their business register, the agency's usual collection strategy etc.

57. This being said, it is probable that participants will either choose the establishment or the enterprise, the two most widely used statistical units.

58. The choice of statistical unit for the questions of modules 1-6, especially when addressed to the computer services industries, can affect the comparability of results. The main consequences are:

(a) A difference in coverage. Contrary to an enterprise-based survey, an establishment-based survey would include "commercial" establishments classified in ISIC 72 which belong to enterprises for whom the provision of computer services is a secondary activity, and establishments classified in ISIC 72 whose products are transacted within the enterprise; and would not include establishments classified outside ISIC 72 which belong to enterprises primarily engaged in providing computer services. The impact on the comparability of results will depend on the degree of specialization of enterprises operating in the computer services sector;

(b) Choosing the enterprise rather than the establishment would also have an impact on the industrial structure shown by statistics. Choosing the enterprise could result in significantly different specialization and coverage ratios if

enterprises are generally more diversified than establishments and if the production of computer services is a significant secondary activity of enterprises classified outside the computer services sector;

(c) Choosing the enterprise can also create difficulties in tabulating information on a regional basis. This problem, however, can be solved by asking enterprises to report information on a regional basis or to provide information which allows the statistical agency to make estimates.

59. If the establishment is chosen as the unit of observation, it would be necessary to develop a questionnaire (or a collection strategy) to cover the activities of ancillary units classified in the target industries. This is necessary in order to have full coverage and, by implication, to enable the measurement of value-added originating from the industry. The ancillary units of particular interest in the computer services industries are head offices and research and development units concerned with the development of software. The basis for such an inquiry could be the questions of module 2 (Goods and services used in the operations) and module 11 (Software research and development).

60. Those countries that choose the enterprise as the unit of observation might want to include a balance sheet in order to gather information on assets and liabilities and the source and application of funds. This information is typically available for enterprises, but not necessarily for more narrowly defined statistical units. Such an approach would provide a broader set of integrated data to analyse the performance of the computer services sector. Other questions which would be relevant at the enterprise level are interest and dividends paid and received, insurance claims, bad debts recovered and donations.

K. National accounts concepts and the modules

61. The schema shown below does not provide a guide to the precise reconciliation of the content of the modules to the national accounts. There are items such as interest and dividends paid and received which are not included in the modules. In addition, some of the items collected with the proposed model survey will need to be revalued to conform to SNA concepts. In particular, insurance and depreciation expenses are treated differently in business and economic accounts.

62. The survey's conceptual framework in terms of macro-economic concepts is as follows:

	Gross output at producers' prices		
	Module 1, except L (operating subsidies)		
	+ Module 4c (closing)		
	- Module 4c (opening)		
	+ Module 5B (closing)	)	
		)	optional
	- Module 5B (opening)	)	
less	Intermediate inputs at purchaser's prices		
	Module 2, except A, B, K, L and N		
	+ Module 3		
	+ Module 4, questions a & b (closing)		
	- Module 4, questions a & b (opening)		
=	GDP at factor cost		
	- Module 2, questions A & B		
=	Gross operating surplus		
	- Module 2, question N		
=	Net operating surplus		
less	Non-commodity indirect taxes		
	Module 2, questions K & L		
plus	Operating subsidies		
	Module 1, question L		

IV. POINTS FOR DISCUSSION

63. The Statistical Commission may wish to:

(a) Comment on the scope, content and methodology of the proposed survey;

(b) Suggest further follow-up action to the proposed survey;

(c) Provide guidance on possible future contributions that the Voorburg Group may make to international work on services statistics.

Notes

1/ Official Records of the Economic and Social Council, 1989, Supplement No. 3 (E/1989/21), para. 77.

2/ These groups have been tested and refined through the survey process, now in its fourth year, in Canada.

3/ This type of business is also called "value-added reseller" and "turnkey system vendor". True value-added resellers, however, act more like wholesalers in that they sell the same product (computer system) to many clients.

4/ See "Telecommunications services", the Canadian submission to the meeting of the Voorburg Group on telecommunications and value-added network services (Ottawa, 2-5 October 1989).

5/ The information necessary to measure own account capital formation, in its traditional SNA sense, is not asked here because it is assumed to be a marginal activity for the targeted population. If software is considered capital there would be a definite need to address this issue in the questionnaire. Perhaps the questions of module 11 (Software research and development) could serve the purpose of measuring this type of own account capital formation.

6/ Indirect taxes are defined as compulsory payments made by producers to government in respect of the production, sales, purchase or use of goods and services, which they charge as expenses of production. Non-commodity indirect taxes are defined as indirect taxes which cannot be identified with any particular commodity produced or sold.

7/ Custom software can be delivered like other professional computer services, by telecommunication means or simply in hardcopy by mail.

8/ One also needs to look at the information gathered in modules 1 and 6 to get the "complete picture".

9/ Those countries who currently conduct a research and development survey based on the OECD (Frascati) standards can meet the basic objectives of this module by adding the following question: please estimate the percentage of the total research and development expenditures reported for 199__ on software development.

10/ There are some important unresolved definitional, valuation, classification and measurement issues relating to the treatment of research and development and similar expenses in economic accounts. These issues are dealt with in M. C. Caplan, Intangible investment: an essay at international comparison", paper prepared for the Organisation for Economic Co-operation and Development, Directorate for Science, Technology and Industry (DSTI/IND/87.24, 22 September 1987), and Anne Harrison and Carol S. Carson, Service Output as Capital: What are the Implications? (Washington, D.C., United States Bureau of Economic Analysis, 1989).

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PRICE STATISTICS

Report on developments in phase VI of the International Comparison Programme (ICP) and on other related international comparison issues

Report of the Secretary-General

SUMMARY

The present report provides information on the finalization of the phase V (reference year 1985) ICP comparisons and includes a review of experience of organizations and other users in the application of ICP results (paras. 3-19). A separate section summarizes the progress in implementing phase VI comparisons, both at regional and global levels and progress in preparing a Handbook on the ICP (paras. 20-39). The methodological aspects of the comparison, with special attention to the linkage of the regional comparisons are considered on the basis of the conclusions of meetings on ICP methodology (paras. 40-50). The organizational and financial issues confronting the ICP are also reviewed (paras. 51-69). Points for discussion are also presented (para. 70).

* E/CN.3/1991/1.

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INTRODUCTION

1. At its twenty-fifth session, the Statistical Commission requested the Secretary-General to submit to the Commission at its twenty-sixth session a progress report on developments in phase VI of the International Comparison Programme (ICP) and on other related international comparison issues. 1/

2. In response to the Commission's request, the Statistical Office of the United Nations Secretariat has prepared the present report which is organized in five sections. Section I provides information on the finalization of phase V of ICP - that is, the 1985 round of comparison. The same section includes a review of experiences of organizations and other users in the application of ICP results. Section II reviews the progress in the phase VI comparison. Section III summarizes some of the methodological issues that were discussed in meetings held since the Commission met in February 1989. Section IV raises the organizational and financial issues of the ICP in its current phase. Points for discussion are provided in Section V.

I. FINALIZATION AND EXPERIENCE OF THE PHASE V (1985) COMPARISON

A. Status of completion of the phase-V ICP comparison

3. Since the twenty-fifth session of the Statistical Commission, phase V of the International Comparison Programme (ICP), with 1985 as reference year, has been completed for most of the regional comparisons by the time of the preparation of the present report. Published results are available for the 12 European Community (EC) countries participating in a comparison conducted by the Statistical Office of the European Communities (EUROSTAT). 2/ A separate report covers the results for the 22 countries participating in the comparison conducted by the Organisation for Economic Co-operation and Development (OECD). 3/ Results of the European comparison, covering the 17 European OECD countries plus three Eastern European countries, were published by the Economic Commission for Europe (ECE). 4/ Results of the African comparison, covering 22 African countries conducted by EUROSTAT, were also published. 5/

4. The processing of the final results of the comparison conducted among countries of the Economic and Social Commission for Asia and the Pacific (ESCAP), which includes 10 countries plus Japan, is completed, and preliminary results were made available at the ICP seminar held in Niigata (Japan) in November 1990. The results are to be finalized by the ESCAP Secretariat after receiving comments from the countries concerned. With regard to the Caribbean comparison (seven countries) conducted by EUROSTAT, results were expected to be available by the end of 1990. There was no participation from the Latin American or Western Asian regions in phase V.

5. The processing of the world results covering 64 countries of ICP phase V is being undertaken by EUROSTAT after the completion of the Caribbean comparison. This processing would generate world results released at a common GDP

classification level broken down by 56 categories. The final report about the world comparison of purchasing power parities and real GDP (and its components) for 1985 is expected to be published as a joint publication of the concerned agencies in 1991. Considering the delay in the publication of the world comparison results of ICP, some sort of updating of 1985 benchmark results is intended to be incorporated in the final report.

6. In addition to the absence of Latin American and Western Asian countries, there are other difficulties in the world comparison caused by the small number of "core" countries available for linking the regions. While this adversely affects the quality of the world comparison, the global ICP results are still considered to have a sufficient degree of reliability. The final report - along with the numerical results - will provide information on the methodology used in order to provide indications for users of the limitations of the results of the phase V global comparisons.

B. Review of experiences of organizations and other users in the application of ICP results

7. The Working Group on International Statistical Programmes and Co-ordination, at its thirteenth session, held at Geneva from 11-14 September 1989, requested that the present report include a review of experiences of organizations and other users in the application of ICP results. The Sub-Committee on Statistical Activities of the Administrative Committee on Co-ordination (ACC) at its twenty-fourth session (18-22 June 1990, Vienna) considered this issue again and recommended that the uses of purchasing power comparisons from the viewpoint of national users needed to be addressed more fully.

8. The Statistical Office of the United Nations Secretariat sent a questionnaire to the 64 countries that participated in phase V of the ICP asking them, inter alia, to provide their views on the benefits from the ICP. Specifically they were asked how the ICP results were used in each country, both within and outside the national statistical office. From replies received it appeared that countries evaluated positively the uses of their participation in the project. About 40 per cent of the respondents said their own offices have been able first of all to make use of the ICP results; about a third felt that their countries' economic and social policy makers were using the data; a few countries mentioned that universities, academic circles and businesses were. However, most developing countries responded that they had not yet begun to use the results in their own offices.

9. Due to the shortcomings of the exchange-rate-based comparisons, the main aggregate of ICP results, the per capita real product, is the most appropriate alternative indicator expressing the relative position of a given country vis-à-vis other countries in the world. ICP results help first of all to satisfy the needs stemming from the interest in knowing how a given country's economic development level compares with others. Users are interested primarily in the GDP volume ratios that serve as a basis for ranking countries according to their real GDP per capita levels and show the extent to which the real product of each country differs from the world/regional average.

10. The purchasing power parities (PPPs), obtained through the ICP indicate how much one unit of a currency is worth in terms of number of units of currency of any other country, based on the actual prices existing in the two countries. Purchasing power parities are determined not only for the GDP as a total aggregate but for a number of sub-aggregates, too. In this way it is possible to analyse relative price levels of different commodity groups across countries. The exchange rate/PPP ratio provides information on the relative price level in one country as compared with another.

11. A number of countries issued reports or bulletins summarizing the results of ICP world and/or regional comparisons and highlighting the performance of their respective countries. The relevant information attracted the attention of a wide range of users. Published data on volume comparisons have been studied by government offices, economic planning agencies, ministries. Economic policy-making bodies used the ICP results in analyses of international differences in standard of living, consumption level, price structure, or international competitiveness in world trade. Policy advisers investigated issues of social policy based on ICP data. Central Banks benefited from analysing differences between purchasing power parities and exchange rates.

12. Original ICP data as such were quoted in numerous scientific papers, dissertations and by the press. Universities and research institutes showed great interest in using the ICP data-base as reference material, in development analysis, often combined ICP results with global social and economic variables. Some use of ICP materials has been made in measuring productivity and competitiveness, as well as in strategic planning by international businesses. Occasional studies on labour productivity and income elasticity were carried out on the basis of ICP results. Real GDP per capita volume ratios, obtained from ICP often appear in publications aiming at characterizing correlation between economic development level and various statistical indicators expressed in physical terms. ICP results served as a basis for studies on inter-country structural differences. As the ICP based quantity comparison of national economic structure between countries is not affected by price differences, it provides internationally comparable data on the share of individual components of GDP.

13. In the same questionnaire the Statistical Office of the United Nations Secretariat asked countries whether participation in the ICP had contributed to the development of national statistics. In their answers three fourths of the responding countries said they believed that they had made significant improvements in their price statistics and national accounting, and in strengthening national statistical infrastructure and training of skilled staff at the national level as a result of their participation in the ICP. As the building blocks of the ICP exercise, prices of individual commodities and GDP expenditures at basic heading level are reported by the participating countries, the main contribution of ICP to the development of national statistical systems was in focusing attention on possibly weak areas of accounting and price survey techniques. Countries mentioned they experienced significant accumulation of knowledge as a consequence of using international recommendations and the opportunities for interchange of ideas and experience with colleagues of other countries and international agencies. Special efforts made to collect basic data, meeting the ICP requirements, was turned into a

regular activity as far as these requirements coincided with the overall priorities of the national statistical system as a whole.

14. The sub-division of GDP into ICP expenditure categories is more detailed than the one conventionally defined in United Nations documentations and adopted by a number of participating countries. The need to estimate detailed expenditures categories provides a stimulus for developing procedures which, on the regular basis, can produce more detailed and reliable national accounts data than was previously possible. It required refinement of household consumption survey questionnaires and there was a need for re-classifying construction and other capital formation expenditures. The framework used in ICP classification - which is based directly on SNA - was found to be widely applicable as a basis for extending routine national statistical inquiries. In a number of cases countries discovered that some items had been erroneously omitted from GDP compilation formerly. As a result, ICP helped to make a step forward in promoting international comparability of national accounts.

15. Participation by countries in the ICP resulted in an expansion of price statistics activities. Since it was necessary to conduct nationwide price surveys in order to produce national average prices for ICP purposes, participation in ICP led to extension of the geographical coverage of regular price statistics work. Many countries also added new items to their consumer price index list and even changed the way they described items on the basis of their ICP experience. Some participating countries reported that they expanded the coverage of machinery and construction pricing. The exposure of staff to the difficulties of product matching within an international context helped improve national techniques of quality matching. Another area that benefited from ICP experience in various countries was an improvement in survey design of price collection and in some cases when the sample was redefined and the method of classification and selection of outlets was changed. It was considered a further improvement in accuracy of collecting prices that ICP surveys were conducted on the basis of field enumeration, i.e., personal visits to the outlets instead of the former practice of postal inquiries. A number of developing countries, after having joined ICP, succeeded in converting their price indices from unit value type indices to genuine price indices.

16. According to the experience of the European Community, the main ICP results that are of interest to users are price data, the PPPs, and the volume indices. The collected prices appear in frequent publications which are requested by the press, research institutes, and enterprises. The collected prices are also used to draw up post adjustment coefficients applied to the salaries of EC officials posted in different countries. The PPPs obtained in the framework of the ICP are used in EUROSTAT's statistics to make comparisons in real terms of labour costs. The volume indices are used as weighing factors in drawing up community indicators starting from national indicators. The volume indices between countries are furthermore used by the Directorate General of the EC Commission for different macro-economic analyses. National income converted by PPPs is also used to distribute the budget of EEC among member countries. The volume indices per head are used in the framework of the EC regional policy to allocate development funds.

17. In contrast, in other regions there appears to be considerable opposition to using ICP-type results for administrative purposes, particularly at the world level. Two main arguments were expressed in support of this view. On one hand, there are still many countries not participating in the exercise, and one cannot use a double standard, PPP-based comparisons for the participating countries, something else - e.g., exchange rates, for the non-participating countries. For a number of developing countries the difference between the two results - the exchange rate deviation index - may even attain proportions, like 1 to 3 or 1 to 4. The other argument was that the ICP methods are likely to face criticism, especially if there are financial consequences of the results obtained. A number of participating countries expressed their intention to withdraw from the ICP if the results are used for financial or administrative purposes. It should be stated that no single method is appropriate for all purposes and different multilateral methods - among them ICP methods - may yield different results.

18. Exchange rate conversions are not free of methodological choices, either. The exchange rate that is sought for this purpose is the annual average rate across all transactions, and it is often different from the regularly published official rate. Especially when black market rates exist this may involve a large element of guesswork. In addition, even the legal rates fluctuate erratically, while domestic prices and quantities tend to remain relatively stable. This combination produces erratic and implausible estimates of real GDP. The World Bank, whose World Atlas is the most widely cited source of international income comparisons, also uses a moving average of recent exchange rates. However, there are substantial differences produced by methods using two different three year periods of averaging. (For example, one period terminates in the target year, and thus is not centred on the target year; the other centres on the target year but is available only after a further year elapses.) When these two methods were applied to 1987 data, three year average rates centred on 1987 ranged from 54 per cent to 127 per cent of those centred on 1986, the mean absolute difference for the nine lowest income countries was 20 per cent. Thus this single source of different methodology produces differences in exchange rate conversions that are larger than those encountered in the PPP converted comparisons.

19. On the other hand, there has been extensive analytical uses of purchasing power parities at the global level. The World Bank has made use of ICP results for research and analysis. A mainframe system has been developed to accommodate storage and retrieval of available data from the ICP phase-V Africa exercise. The data consists of prices collected from 18 African nations for a maximum of 971 distinct commodities. Each price quotation (up to 200 per commodity) is tagged with information that designates the market (urban/rural) and outlet (formal/informal) type from which it was collected. The system is currently equipped with selections for extracting information on specific commodities in un-weighted aggregate form from certain markets, outlets, commodities, or countries. Figures are available in local currency or, in some cases, United States dollars. The Bank has also collated available price data from ICP benchmark exercises (1980 and 1985), and time series from the United States Bureau of Labor Statistics to develop a tool to extrapolate ICP benchmark data into time series. Similarly, GDP estimates, adjusted by estimates of purchasing power parities for 1987 have been used as one of the three basic elements in building the human

development index in Human Development Report, published by the United Nations Development Programme (UNDP) in 1990. 6/ There is a wide range of similar studies in preparation, such as monitoring achievements of the International Development Strategy for the 1990s which could benefit from up-to-date and reliable purchasing power parities derived from phase VI of the ICP.

II. OVERALL PROGRESS IN THE PHASE-VI COMPARISON

A. Objectives of ICP phase VI

20. The objectives of ICP phase VI are to:

(a) Cover as many countries as possible in all regions of the world (covering 80 to 90 countries);

(b) Do the regional comparisons in a manner that will allow linkages to each other, presumably by the core commodity approach;

(c) Foster the use of procedures and practices that will, to the extent possible, gradually make ICP a part of a country's routine work in national accounts and prices without the need for much additional resources;

(d) Co-ordinate the regional comparisons so as to complete them by a specific date;

(e) Produce a global comparison as fast as possible; and

(f) Disseminate detailed data through publications and diskettes.

To achieve these ends, it will be necessary to empower the countries to do their own processing and analysis by providing them with relevant software for use on micro computers; ensure that the institutions carrying out the regional comparisons have the necessary resources to carry out their responsibilities in a smooth and timely manner; and permit the Statistical Office of the United Nations Secretariat to serve as the centre of ICP global comparisons, complete with relevant tools (computer hardware and software) and personnel with the skills required to carry on future work.

B. Regional comparisons

21. An uneven progress has been experienced in the phase VI of the ICP. In the European regions, Group I and II countries have already started phase-VI comparisons.

22. In the framework of the OECD and European Community - with the full participation of their respective member countries - the comparison is carried out on a continuous basis (instead of the traditional five-year benchmark approach). Final results for 1990 should be available by the end of 1991.

23. In Eastern Europe, most countries have joined ICP Group II in the new round and preparatory steps were taken for forthcoming basic data collection. In addition to the previous participants (Hungary, Poland and Yugoslavia), Czechoslovakia and the USSR are engaged in bilateral comparisons with Austria which provide a link to the European comparison.

24. According to the work programme prepared by ECE (under document CES/630), final results of the European Comparison Programme (ECP), covering 24 countries for reference year 1990, are expected by the end of 1992.

25. For the developing regions, the picture is mixed. The implementation of a regional comparison is under way in the ESCAP and ECLAC regions. In Africa and Western Asia, however, participation in phase-VI comparison is still uncertain. There are continuous problems of participation, mainly due to the lack of sufficient financial support.

26. In the ESCAP region, 14 countries and Japan plan to participate in phase-VI comparison. An Asia-Pacific seminar on the use of purchasing power parities was held in Niigata, Japan, from 26 to 30 November 1990 to launch the comparison, select the reference year and discuss methodological, organizational and other related issues. The seminar was organized by ESCAP and sponsored by the Government of Japan. The Commission will be given information on the results of the seminar in document E/CN.3/1991/30.

27. Sixteen countries in the ECLAC region responded to a letter of the Statistical Office of the United Nations Secretariat and expressed interest to take part in the phase-VI comparison. The ECLAC secretariat has shown support for the project and the Inter-American Development Bank (IADB) has approved a project proposal to provide financial assistance. However, a final list of participants and time schedule has not yet been agreed upon.

28. Depending on the extent of the support provided by the EUROSTAT and possibly other organizations to the African region, it is hoped that the same number of countries can participate in phase-VI comparison than in the former round. However, the preparatory work has not yet started.

29. Although individual national statistical offices and potential users in the ESCWA region have from time to time expressed considerable interest in establishing regional comparison, there has been no formal expression of interest in or support for an ESCWA regional comparison in phase VI of the ICP.

C. Global comparison

30. At its twenty-fifth session the Statistical Commission "endorsed the continuation of the programme, at least at the regional level, and as a world comparison, only if (i) resources permitted and (ii) it could be carried out in such a way as to ensure the statistical soundness of the comparison". 7/ There is great interest from part of a wide range of users to have global comparison results. At the same time, about 80 countries in all have expressed willingness to

participate in one or another of the regional comparisons, the results of which could be ultimately linked to the world comparison. However, the prospects for a successful world comparison in phase VI will depend on whether satisfactory solutions can be found to overcome difficulties in funding, and some methodological issues also remain unresolved.

31. Pursuant to the request made by the Statistical Commission at its twenty-fifth session, a meeting of the Inter-Secretariat Working Group (ISWG) on the International Comparison Programme was convened in New York (10-11 July 1989) to discuss the problems of the ICP, with special attention to the problems of a world comparison in phase VI. The meeting was attended by representatives of the EUROSTAT, OECD, the World Bank, IMF, ECE, ESCAP and the Statistical Office of the United Nations Secretariat. Deep reservation was expressed about the kind of global comparison that can be derived by a simplified linking of the regional comparisons only. The core product approach, mentioned as a viable alternative, got further support at subsequent technical meetings.

32. Since the July 1989 meeting of the ISWG on ICP, considerable efforts have been undertaken between member organizations to define a strategy for the implementation of phase VI. A series of informal consultations was held recently between the Statistical Office of the United Nations Secretariat and the World Bank and other organizations involved or expected to be involved in work on phase VI. Many aspects of the ICP have been discussed - among them, the use of the core-country versus core-product method, specifications and other methodological issues, analytical needs, software development and related processing issues, postponement of the reference year, timetable, financial resources, division of work and co-operation among international organizations. This led to the decision to hold a conference on ICP to discuss these and related issues so that clear conclusions on the scope and nature of the phase-VI ICP can be reached.

33. The World Bank, in co-operation with the Statistical Office of the United Nations Secretariat, sponsored the conference, which was hosted by the University of Pennsylvania and took place from 1 to 3 August 1990 in Philadelphia. The theme of the conference was "Twenty-five years of ICP: a Review and future plans". Besides experts from the host University, ICP experts and representatives of the World Bank, Inter-American Development Bank, the Statistical Office of the United Nations Secretariat, EUROSTAT and its consulting firm EUROCOST, OECD, the Austrian Central Statistical Office, United States Bureau of Labor Statistics and the United States Office of Management and Budget were present.

34. In respect of the forthcoming phase VI of ICP, the outcome of the meeting was a joint agreement to work in close co-operation to resolve the currently undetermined methodology, work programme and timetable to implement phase VI as rapidly as possible. It was understood that the regions would produce their own comparisons with the ultimate objective of a timely global comparison.

D. Handbook on ICP

35. At its last session, the Statistical Commission asked the Statistical Office of the United Nations Secretariat to expedite the preparation and dissemination of technical documents connected with ICP methodology and use of ICP data, particularly the handbook on ICP methods. Tragically, the two experts working on the handbook on behalf of the United Nations and EUROSTAT both died in 1990, with the manuscript only partially finished. With the help of experts from the World Bank and other sources, it is now hoped that a draft of the handbook will be circulated for comments early in 1991 and submitted for publication - at least in an interim version - sometime in 1991.

36. The ICP methodology is compatible with the accounting concepts and framework drawn up by the revised System of National Accounts - more closely, in its chapter on price and volume measures. The general principles of measuring differences in the volumes and price levels of goods and services between countries are the same as those for intertemporal comparisons within a single country. However, for various reasons, comparisons of prices and volumes across countries are generally more complicated and more sensitive to the index formula employed. The corresponding chapter of SNA provides only general guidelines for inter-country volume and price index calculations and it recommends consultation with relevant manuals for more details.

37. There is a wide range of written information available on general methodology of international comparison of prices and volumes, mainly published along with the reports on previous phases of the ICP. The methodology of ICP, however, does not include practical instructions on how participating countries should act in order to achieve a successful application of the general methods. The handbook, as a tool of highlighting countries' role in ICP work, offers guidance and suggests means of achieving comparability of basic data, or representativeness of the selected goods, and aims at how to cope with data requirements and price collection procedures.

38. The handbook is intended to deal only in brief with the general principles of the ICP work. It puts emphasis on operational matters, including the selection of items to be used as price representatives, the methods of observations, the quality matching and special problems of "comparison resistant items" (usually items without a market price - e.g., services). Problems of processing are also included.

39. The publication of the handbook will contribute to spreading technical knowledge needed at the national level by staff responsible for work on ICP, especially in the case of new participants or in countries where ICP work is not a permanent activity and frequent changes in personnel cause discontinuity in the project. It is anticipated that the handbook will be helpful in promoting uniform understanding of the principles in various regions which will facilitate linking regional results to world comparison. Nevertheless, the handbook can not substitute for special training of field staff, where needed.

III. METHODOLOGICAL ISSUES FOR PHASE VI

A. Interdependence of methodological and financial issues

40. The Expert Group on ICP Methodology, convened jointly by the EUROSTAT, OECD and the Statistical Office of the United Nations Secretariat, met in June 1988 in Luxembourg and again in June 1989 in Paris to review the progress of the work on the ICP and to consider outstanding methodological issues. At both the 1988 and 1989 meetings, financing of the ICP was seen to be one of the major problems, and it was found very difficult to separate funding issues from methodological ones. In the words of the 1988 meeting report, "The Group regreted the continued lack of sufficient resources for the ICP. It is the source of many of the observed weaknesses of the ICP and will be the main obstacle to accomplishing the improvements desired for the future."

B. Methods of aggregation

41. While there was some discussion of regionalization and product selection and of reconciling ICP benchmark results with other indices, the chief concern at both meetings on ICP methodology was the method of aggregation to GDP. In 1988, objections were raised to the Geary/Khamis method, mainly because of its tendency to produce the Gerschenkron effect (i.e., a higher Laspeyres quantity than Paasche quantity when the price structures of the countries being compared are very different) and because there is a lack of sectoral independence (i.e., parities for one level of GDP depend upon prices in another level). At the 1988 meeting, explanation of a proposed replacement method, the implicit price method, was given. However, it did not receive support for practical use. (It uses an Elteto/Koves/Szulc (EKS) volume matrix which is made additively consistent.) After discussion of the merits and disadvantages of a number of aggregation methods, the Geary/Khamis and EKS methods were the two favoured ones. However, the meeting concluded that "there is no method of aggregation which can fulfil all the various requirements of international comparisons". Further tests of aggregation methods were called for.

42. In June 1989, following a lengthy consideration of the implicit price method, the meeting concluded again that there was no single aggregation method which satisfied sufficiently all the requirements of comparisons between countries. The experts agreed, therefore, that instead of one single method - as was the practice before - parallel methods should be used.

C. Core commodity vs. core country method

43. Following the request made by the most recent session of the Statistical Commission, a meeting of the Inter-Secretariat Working Group (ISWG) on the International Comparison Programme was convened (10-11 July 1989, New York) to review organizational and also some methodological arrangements of the ICP, especially those which had an impact on the elaboration of the world comparison. Special attention was paid to the core country method.

44. In phase V, regional comparisons were linked to form a global comparison by the core country method. It was intended that in each region one or more countries, designated as "core" countries, would price some specifications for another region as well as its own. Binary comparisons between core countries belonging to different regions were to provide means for linking the regions.

45. In July 1989 the ISWG considered that the small number of core countries made it difficult to draw conclusions on the reliability of the resulting purchasing power parity estimates. It found unlikely that there would be any better chances for the core country comparisons in phase VI than there were in the preceding phase. Accordingly, initiatives were made to replace the core country system by another approach.

46. The ICP conference at the University of Pennsylvania (1-3 August 1990; see para. 33) stated again that the core country method had not worked well in phase V because many of the initial volunteers to serve as core countries dropped out. The primary reason cited was lack of resources and a decreasing interest in undertaking the extra burdens of playing the role of link countries.

47. At the conference a consensus developed to use a core commodity approach instead of the core country method in phase VI. This would shift some of the burden from the countries to the Statistical Office of the United Nations Secretariat which had started to develop a core commodity list consisting of items overlapping in at least two regions. As a second step, countries will have to price as many as possible of the items that are common in all regions, along with pricing the items specific to their own regions. The advantage of the core commodity approach is that it makes use of all of the available price information to establish links between the regions and is not influenced by the choice of countries for the interregional links.

D. Improving comparability of specifications

48. One major deficiency of the specifications list used in previous phases was that the items were not representative for developing countries. This was because the list was put together initially for industrial countries and modified for other regions. Although countries in developing regions were encouraged to add their own representative items, that was not done as diligently as had been expected. To change the situation, the items list will be prepared by the regional organizers and, as far as practicable, it could be based on collating existing country lists. In order to make ICP also part of a country's routine work in national accounts and prices, the following steps could be followed:

(a) Determine what the countries routinely collect and what additional work would be necessary to do ICP. To accomplish this, a survey is needed of items and specifications already included in the CPI (and other indices) in countries, and of household budget surveys or other means of establishing expenditure weights;

(b) Develop quality correction factors to enhance comparability, since items in CPI are not likely to match except at the generic level. Further research may assess the feasibility of using such a method for ICP. In order to make ICP data collection relevant for country needs, special computer software is necessary so that developing countries may process and analyse their data for own policy purposes.

E. Rolling base approach

49. In phase VI EUROSTAT and OECD adopted a new method to calculating PPPs. In the past a complete survey for GDP and its uses took place every five years (benchmark years). The inconsistency between the results of successive quinquennial years and the results obtained when one benchmark year was extrapolated to another, with the national accounts volume growth indices, led those regions to consider a "rolling base" approach system to calculating the PPPs. The idea is to collect each year the prices of about one third of the total basket of products of household consumption. For the other two thirds, the basic parities for the current year are deduced by extrapolating the latest available basic parities using corresponding detailed price indices.

50. For collective consumption, public service salaries are collected each year for a certain number of typical jobs. For gross fixed capital formation, annual surveys are also carried out. These annual surveys allow the calculation of parities for the corresponding basic headings. In these areas an annual survey is necessary because, for the time being, a set of harmonized temporal indices is not available at the national level. The corresponding expenditure figures for the ICP classification are also collected each year, and this completes the basic data which allow the annual calculation of parities and volume ratios.

IV. ORGANIZATIONAL AND FINANCIAL ISSUES FOR PHASE VI

51. In line with previous decisions of the Statistical Commission, the Philadelphia conference took as a starting point that phase VI of the ICP, like the two preceding phases, would be based on regional comparisons. While most of the regional comparisons seem to be secured for the next round of the ICP and arrangements have been made to start some of those comparisons, the continuation, nature and timing of the world comparison remain unresolved issues. It is still unclear whether ICP in phase VI will be restricted to a series of regional comparisons or to what extent it will be possible to establish links among them. Nevertheless, some pre-conditions have to be established early in the process in order to leave open the possibility for linking regional data into a global comparison.

52. The premises for the global comparison are reflected in the conclusions of the Statistical Commission at its twenty-fifth session. Those premises are related to resource and technical issues (see para. 30 above). This implies in particular that there will be timely regional comparisons; that the national and regional ICP operations are carried out with sufficient attention to quality and in a

reasonably comparable manner; and that the expertise, software and financial resources will be available both at regional and world level to match, link and process basic data. The balance of this section reviews how well these conditions are likely to be met.

53. The ICP has always been a co-operative undertaking; however, work is now more widely shared than in earlier phases. Participating countries still focus their work on price collection and on providing expenditure data which constitute the basic information required. A more recent development is the broader role of the United Nations regional commissions in using their close links to the countries to organize the regional comparisons. Although the Statistical Office of the United Nations Secretariat remains the world centre of ICP, responsible for promoting the overall co-ordination of the programme and organizing the global comparisons, it is necessary to carry out these functions in close co-operation with a number of other international and regional organizations as well as member States. Nevertheless, it is widely recognized that the uniform application of classifications, concepts and definitions and co-ordinated methodology are needed to ensure that all regional and bilateral comparisons are compatible with each other, if they are to be linked in a global comparison. A high degree of communication among participating countries and involved organizations is essential if this principle is to be a reality in phase VI.

54. A number of open questions of the phase-VI world comparison are closely connected to organizational problems to be decided at the regional level. Among them, the choice of the reference year may be a cornerstone which determines the extent to which the ICP in phase VI will achieve a meaningful global comparison or simply a series of regional results. It is expected from the regional meetings under preparation that their outcome will indicate how far one can go in envisaging a world comparison in phase VI.

55. As a result of the relatively late start of phase VI work in most developing regions, it is clear that it would not be possible to adhere to the originally set reference year, 1990. The only regions where the comparison with reference year 1990 will certainly take place are those of the European Communities (Group I) and the OECD countries.

56. Although countries in Eastern Europe, with Austria as a centre, committed themselves and took steps to carry out data collection in phase VI for 1990, the reference year is likely to be delayed. Participants of Group II are mainly countries in transition, facing not only economic hardships but overburdened with methodological difficulties to transform their statistical systems to meet standards of market economies. Some of them have just started compiling GDP; therefore the quality of ICP in terms of accuracy may benefit from delaying the ICP computations to a later period when those countries may have gained some experience in GDP calculations.

57. A later reference period will also be used in the ESCAP and ECLAC regions. For a number of countries it is already too late to organize price surveys to collect average prices even for the reference year 1991. Therefore, they may wish to consider the option to postpone the reference year of their respective regional comparisons to 1992 or later.

58. The option to postpone the reference year, however, has to be co-ordinated among regions so that results could ultimately be linked to a world comparison. From the point of view of the region of the European Communities, any reference year can be accepted, since they carry out the comparison on a "rolling" (continuous) basis. Although OECD undertakes data collection similarly on a rolling basis, their results will be available for the 1990 and 1993 benchmark years. It is desirable to organize regional comparisons with the same reference year in order to avoid the adverse effects of having to extrapolate with suitable price indices a full set of detailed parities. To postpone the reference year of the world comparison until 1993 has the disadvantage that results of a new round of world comparison won't be released before 1996. On the other hand, it may bring the advantage of achieving more reliable results due to careful preparation and better quality basic data collection.

59. The Statistical Office of the United Nations Secretariat has prepared a preliminary timetable for the global comparison in order to indicate the successive activities to be arranged. When the timetable was prepared, it was not possible to set realistic deadlines, since the reference year of the regional comparisons and other aspects of phase VI work were still uncertain. A copy of the timetable is provided in annex 1, to facilitate discussion and comments on the sequence and length of stages of work throughout phase VI.

60. At present, the most likely solution to be applied to link each region with the rest of the world is the core commodity method. The Statistical Office is preparing a list of a limited number of core products with detailed specifications. Each country will be asked to price the items on the core commodity list besides the regional specifications serving the purposes of the specific regional comparison compiled and adopted by the regions themselves. The world expenditure category classification will be submitted and recommended by the Statistical Office to the regions to serve as a common basis for basic heading breakdown of GDP in all regional and bilateral comparisons.

61. In phase V the Statistical Office and EUROSTAT shared organization and processing work with regional centres in order to carry out regional comparisons. This practice cannot be sustained in phase VI, and organizers at the regional level will be responsible for the comparison within the region. For phase VI the World Bank has indicated that it is prepared to make software available to assist ICP processing at the country and regional levels.

62. To accomplish the objectives listed in section II (para. 20), resources are needed to:

(a) Fund travel by the staff of the Statistical Office of the United Nations Secretariat and developing country experts;

(b) Provide technical assistance to selected regional commissions by placing consultants or staff there for extended periods;

(c) Hire short-term consultants in selected areas (management, computer, construction, producer durables etc.) both to augment the skill mix of the Statistical Office and to provide them with training;

(d) Hold regional workshops to train national statisticians in ICP methods and practices;

(e) Provide modest cash grants to some developing countries for doing special price surveys or other ICP special requirements;

(f) Provide needed technical co-operation to selected developing countries to improve their ongoing price statistics programmes and capabilities so they can better serve a variety of national needs, including ICP;

(g) Make software available for ICP data processing, as indicated in paragraph 61, and give national and regional staff appropriate training in computer;

(h) Transfer computing operations from Luxembourg to New York for processing global results;

(i) Write and publish the global report.

63. As regards financial aspects of the regional comparisons, the Government of Japan and the Asian Development Bank are considering proposals to provide assistance to the ESCAP regional comparison. Concerning the African comparison, EUROSTAT is investigating the possibilities to share the total burden of a new exercise with other international organizations which have expressed interest in such a comparison. The Inter-American Development Bank offered support to the countries of the ECLAC region for participation in the phase VI comparison.

64. It is unclear if sufficient extrabudgetary resources will be available to permit the concerned staff of the Statistical Office to undertake missions to ensure the quality of phase VI results. Insufficient travel funds for participation in the regional comparisons, including meetings and connected missions, make it difficult to ensure that common approaches are used in all regional comparisons, to promote the quality of the regional comparisons and maintain the integrity of the global comparison.

65. As far as the Statistical Office is concerned, in phase VI it will continue to promote regional comparisons and ensure minimum ICP standards. It will support regional comparisons when the regions take the initiative to undertake such comparisons and will assist developing countries in the application of ICP methodology. Technical support will be provided in the form of preparing and disseminating technical documents and - together with interested international agencies - also in the form of missions to the regions, if adequate extrabudgetary support for travel funds will be available. The work on the core commodity list will be completed. Finally, as indicated at the Commission's previous session, the Statistical Office intends to prepare a report of phase VI results.

66. The character of the proposed phase VI report will depend largely on how well the conditions of a satisfactory global comparison are met. A range of possibilities exist. One possibility is that the report on the results would simply put the results of the various regional comparisons in one volume, without any explicit attempt to link them. Such a report could contain technical

information on the methodologies used in each regional comparison and, as such, might be of use to researchers and those concerned with planning future phases of ICP.

67. At the other extreme, the report could provide global aggregates based on a genuine global comparison. Such a report can be prepared only if several conditions are met: the resources required to ensure the quality of regional comparisons and the comparability of regional data are available; the consensus reached on the core commodity approach turns into reality as core commodities are priced in at least some countries of each region; data inputs from the regions come in a timely way; and portable microcomputer software is developed for processing data to produce global results.

68. Between these two alternatives, the Statistical Office may find ways of linking regional results by developing supplementary information, based on data from the national accounts questionnaire, which would facilitate linking regional data, if not all regions are carrying out the ICP programme. For this purpose the Statistical Office would need to elaborate and internationally standardize in parallel, classifications of final demand categories (i.e., classifications of household and government consumption and capital formation) and commodity lists that would include commodity items representative of those final demand categories. The commodity lists would be updated periodically, countries would be encouraged to take into account such commodity lists in the design and development price and price index data for categories of final demand, including CPIs. In addition to the development of international classifications of domestic final demand categories and corresponding commodity lists, the Statistical Office would encourage countries to report annually on the basis of tables existing in the present SNA questionnaire, data on a classification of domestic final demand (final consumption and capital formation) in current and constant prices (and implicit price indices for each category) and would also provide actual price information on each of the final demand categories.

69. The countries in the regions carrying out ICP could be linked up with those countries in other regions that are submitting information annually through the United Nations questionnaire on SNA. Once established, price relatives between countries would be available annually, and countries could make use of them in their national accounts compilation, particularly when converting external transactions data to national currency. As price data and price indices would in principle be based on the same commodity lists as internationally recommended, there would be consistency of the price relatives between countries and the corresponding inter-temporal price indices. Increased use of the internationally standardized commodity classifications of final demand and corresponding commodity lists by countries, would improve the country coverage of price relatives and would also improve their reliability.

V. POINTS FOR DISCUSSION

70. The Commission may wish to comment on:

(a) Lessons learned from the phase V comparisons;

(b) Overall progress with respect to phase VI of the ICP at the regional and global levels and the ICP handbook;

(c) Methods of promoting the interest of national users and producers of statistics in phase VI operations and ICP results;

(d) Methodological issues involved in phase VI of the ICP with special attention to the applicability of the core commodity method;

(e) A suitable approach to the issue of a reference year for phase VI, given the various dates being used or proposed in different regional comparisons;

(f) Methods of strengthening the co-ordination of ICP methods and operations and the quality of phase VI regional comparisons, given the financial limitations of the United Nations Secretariat;

(g) The proposed timetable for phase VI presented in annex I;

(h) The extent to which the pre-conditions to embark on a global comparison in phase VI of the ICP have been met and the kind of global report that should be envisaged;

(i) Priorities for further work on ICP by the Statistical Office of the United Nations Secretariat in phase VI;

(j) Additional needed support for ICP in phase VI.

Notes

1/ Official Records of the Economic and Social Council, 1989, Supplement No. 3 (E/CN.3/1989/25), para. 117 (d).

2/ Statistical Office of the European Communities, Purchasing Power Parities and Gross Domestic Product in Real Terms Results 1985 (Luxembourg, EUROSTAT, 1988).

3/ OECD, Purchasing Power Parities and Real Expenditure, 1985 (Paris, OECD, 1987).

4/ International Comparison of Gross Domestic Product in Europe 1985. Report on the European Comparison Programme (United Nations publication Sales No. E.88.II.E.28).

Notes (continued)

5/ Statistical Office of the European Communities, Comparison of Price Levels and Economic Aggregates 1985: the Results for 22 African Countries (Luxembourg, EUROSTAT, 1989).

6/ UNDP, Human Development Report, 1990 (New York and Oxford, Oxford University Press, 1990).

7/ Official Records of the Economic and Social Council, 1989 Supplement No. 3 (E/CN.3/1989/25), para. 117 (a).

Annex 1

TIMETABLE OF ICP PHASE-VI GLOBAL COMPARISON

Item	Task	Date	Institution in charge
1.	Publish a handbook on ICP	1991	United Nations Statistical Office
	(a) Further review and elaboration of the preliminary draft of the handbook	January 1991	World Bank
	(b) Circulation of the preliminary draft for comments to participating countries, regional commissions and ICP experts	January-March 1991	United Nations Statistical Office
	(c) Finalize the handbook, prepare it for publication, distribute it to all institutions concerned	End of 1991	World Bank, United Nations Statistical Office
2.	Elaborate and send out the world expenditure category classification (list of basic headings) to be used in phase VI	First quarter, 1991	United Nations Statistical Office
3.	Elaborate the list of core commodities	Third quarter, 1991	United Nations Statistical Office
	(a) Draw up a combined list of regional specifications and make it available for participating agencies, regional commissions, and ICP experts for comments and proposals on items to be selected	First and second quarters, 1991	United Nations Statistical Office
	(b) Identify representative items that could be included in the list of core commodities	Mid 1991	United Nations Statistical Office
	(c) Finalize the core commodity list and make it available for the regions.	Third quarter, 1991	United Nations Statistical Office

Item	Task	Date	Institution in charge
4.	Review and adopt regional specification list in regions (e.g., ESCAP) where a comparison with 1992 reference year will be carried out	End of 1991	Regional commissions
5.	Launch phase-VI comparison in ECLAC and African regions	To be determined	Regional commissions
6.	Collect data for 1992 reference year and submit them to regional commissions for processing:		Participating countries
	Prices	Throughout 1992 to mid 1993	
	Expenditures	End of 1993	
7.	Process data, submit preliminary results for checking and comments to participants	First quarter, 1994	Regional commissions, participating countries
8.	Finalize results and draft reports with the preliminary results; submit regional data for the purpose of global comparison	Mid 1994	Regional commissions
9.	Final results of the European comparison with 1990 reference year available	End of 1992	EUROSTAT, ECE
10.	Carry out the global comparison, link the regional results and process data	End of 1994	United Nations Statistical Office,
11.	Check, review preliminary results of the global comparison and draft the report for the global comparison	1995	United Nations Statistical Office, regional commissions

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